# · REMARKS

In accordance with the foregoing, the specification and claims 14-18 are amended. No new matter is added. Claims 9-20 are pending and under consideration.

Applicants amend the specification herewith to correct some informalities, specifically, to replace "äk" with "$\delta_k$" as intended based on page 10 of the PCT published application. No new matter is added.

## CLAIM OBJECTION

Claim 17 is objected to as allegedly not further limiting the subject matter recited in claim 15. Applicants amend claims 14-17 to label distinctively "the <u>rearrangement</u> common pattern" and "the <u>assignment</u> common pattern." In view of the claim amendments, Applicants respectfully request the claim objection to be withdrawn.

## CLAIM REJECTIONS UNDER 35 USC § 102:

Claims 9-20 are rejected under 35 USC 102(e) as allegedly being anticipated by U.S. Patent No. 6,785,520 to Sugar et al. (hereinafter "Sugar").

Independent claim 9 patentably distinguishing over Sugar at least by reciting "for each antenna, assigning each element to a subcarrier for transmission, such that for at least two antennas and at least one subcarrier, different elements are assigned to said one subcarrier."

For clarity of the explanation applicants refer herewith to FIG. 1, but the claim is not limited by the embodiment illustrated in FIG. 1. The elements S1, S2, S3 are input to three different branches to be transmitted via the antenna TX1, TX2, TX3. Each antenna uses a plurality of subcarriers for radio transmission. The most straightforward manner of transmitting the data by each antenna is by assigning S1 to subcarrier 1, S2 to subcarrier 2, etc in each antenna TX1, TX2, TX3. However, claim 9, explicitly requires "assigning each element to a subcarrier for transmission, such that for at least two antennas and at least one subcarrier, different elements are assigned to said one subcarrier." This means that a rearrangement of the elements per subcarriers is performed (i.e., "assigning").

In contrast, Sugar discloses data symbols s(k) transmitted on each of the N antenna using K subcarriers **without any reordering**. Sugar teaches that each symbol is multiplied by a transmit antenna weight. However, the multiplication with the antenna weight does not have the effect of changing the order of the symbols, but it merely affects the antenna power (see Sugar,

col. 3, line 62 and col. 9, lines 20-44). Therefore Sugar fails to anticipate the above-identified limitation recited in claim 9.

Claims 10-12 patentably distinguish over Sugar by inheriting patentable features from independent claim 9 and by reciting additional patentably distinguishing features. For example, claim 10 recites that "the factor is a complex or real number, the absolute value of the factor being 1." Sugar discloses that the weight factor therein is the product of a magnitude of the antenna weight and a phase factor (see col. 3 line 29-34 of Sugar). Sugar does not teach or suggest that the weight factor has an absolute value of 1. Further, relative to claims 11 and 12, Applicants challenge the Examiner assertions in the Office Action that the features recited in the claims are anticipated or rendered obvious by the disclosure in col. 7, lines 20-51 of Sugar. Additional explanations are respectfully requested in particular for how the indicated portin anticipates that "a common pattern [used] to assign each element to a corresponding subcarrier" (see claim 11) for at least two antennas is a cyclic permutation (as recited in claim 12).

Independent claim 13 patentably distinguishes over Sugar at least by reciting:

- for each antenna, assigning each element to a subcarrier for transmission, such that for at least two antennas and at least one subcarrier, different elements are assigned to said one subcarrier; and

- for at least one antenna, rearranging the order of the time-dependent signals after OFDM modulation.

In Sugar, after performing the inverse Fast Fourier Transform on the signal sk, in block 530 of FIG. 8, the transformed signal passes through another block labeled "insert cyclic prefix." In column 7 lines 40-41, the only reference to the unlabeled block is "[there] may be some adjustment made for cyclic prefixes caused by the OFDM process." Applicants respectfully submit that Sugar's disclosure is too vague and remote to positively anticipate the rearranging recited in claim 13.

Claims 14-19, depending directly or indirectly from claim13 are also patentable at least by inheriting patentable features from claim 13.

Independent claim 20 patentably distinguishes over Sugar at least by reciting

- assignment means for assigning each element to a corresponding subcarrier, the elements being assigned individually for each antenna such that for at least two antennas and at least one subcarrier, different elements are assigned to said one subcarrier and

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- the transmitter comprises either: multiplication means for multiplying each element for each antenna by an antenna-specific and element-specific factor before OFDM modulation (OFDM), or rearrangement means for rearranging the order of the time-dependent signals after OFDM modulation.

## CONCLUSION

There being no further outstanding objections or rejections, it is submitted that the application is in condition for allowance. An early action to that effect is courteously solicited.

Finally, if there are any formal matters remaining after this response, the Examiner is requested to telephone the undersigned to attend to these matters.

If there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 19-3935.

Respectfully submitted,

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